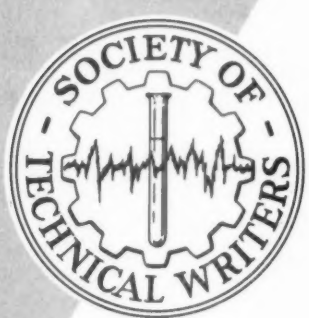
# TECHNICAL WRITING REVIEW

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# TECHNICAL WRITING REVIEW

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# Seven Sins of Technical Writing

**By Dr. Morris Freedman**
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Technical writing calls for the same kind of attention and must be judged by the same standards as any other kind of writing; indeed, it calls for a greater attention and for higher standards. And I say this as a former science and medical writer for the popular press; as a former writer of procedure manuals and directives for the government; as a former editor of technical studies in sociology, statistics, law, and psychology; as a former general magazine editor; as a writer of fiction, essays, and scholarly articles; and, not least, as a professor of English. We can see at once why technical writing must be measured by higher standards, or, at least, by different ones, if anyone will not grant me that they are higher. Technical writing is so immediately functional. Confusing directions accompanying an essential device in a jet plane may result in disaster; bad writing elsewhere can have as its most extreme effect merely boredom.

Yet, while technical writing implicity calls for great care, it differs from other kinds of writing in that its practitioners are, by and large first technicians and only incidentally writers. And principally because of this arrangement, I think, technical writing has become characterized by a collection of sins peculiar to this discipline alone. I say the *collection* is peculiar to technical writing, not any one of the sins alone. Any newspaper, weekly magazine, encyclopedia, textbook, any piece of writing you might name, will contain one or another of these sins, in greater or lesser profusion. But I know of no kind of writing that contains as many different sins in such great number as technical writing, and such with great potential for danger. To repeat, the sins in the world at large — at least, of the sort I'm talking about — often don't matter much. And sometimes, too, they don't matter in technical writing. As my students argue when I correct them in informative writing: "You got the meaning, did'nt you?" Yes, I did, and so do we all get the meaning when a newspaper, a magazine, a set of directions stammers out its message. And I suppose, too, we could travel by ox-cart, or dress in burlap, or drive around with rattling fenders, and still get through a day.

But technical writing in this age can no more afford widespread sloppiness of expression, confusion of meaning, rattletrap construction than a supersonic missile can afford to be made of the wrong materials, or be put together haphazardly with screws jutting out here and there, or have wiring circuits that may go off any way at all, or — have a self-destructive system that fails because of some fault along the way in construction. Technical writing today, if it is much less than perfect in its streamlining and design, may well result in machines that are less than trim, and in operation that is not exactly neat. This is at worst. At best, poor technical writing, when its effect is minimized by careful reading, hinders efficiency, wastes time. Let me remark too that the commission of any one of these sins, and of any one of many, many lesser ones, is really not likely alone to be fatal, just as one loose screw by itself is not likely to destroy a machine; but always, we know, sins come in bunches, the sin of avarice often links hands with the sin of gluttony, one loose screw may mean others, and, anyway, the ideal of no sins at all — especially in something like technical writing, where the pain of self-denial should be minimal — is always to be strived for.

## INDIFFERENCE

Sin number one, then, might be described as that of Indifference, neglecting the reader. I do not mean anything so simple as writing down to an engineer or physicist, although this is all too common and may be

considered part of this sin. This writing down — elaborating the obvious — is one reason the abstract or summary has become so indispensable a part of technical reports; very often, it is all the expert needs to read of the whole report, the rest being a matter of all too obvious detailing. Nor do I mean writing above the heads of your audience either, which is a defect likely to be taken care of by a thoughtful editor. Both writing over or under the heads of your reader, or to the side, are really matters of careless aiming and, as such, of indifference, too. But what I mean here by Indifference are shortcuts of expressions, elliptical diction, sloppy organization, bringing up points and letting them hang unresolved, improper or inadequate labelling of graphic material, and the like. This is communication of gutturals, grunts, shrugs, as though it were not worth the trouble to articulate carefully, as though the reader didn't matter — or didn't exist. This is basically an attitude of disrespect: *caveat lector* — let the reader beware. Let the reader do his own work; the writer isn't going to help him.

Here is the concluding sentence from a quite respectable report, one most carefully edited and indeed presented as a model in a handbook for technical writers used by a great chemical firm. The sentence is relatively good, for it takes only a second reading to work out its meaning (perhaps only a slow first one for someone trained in reading this kind of writing):

> When it is assumed that all of the cellulose is converted to ethyl cellulose, *reaction conversion* of cellulose to ethyl cellulose, *per cent* of cellulose *reacted*, and *reaction yield* of ethyl cellulose based on cellulose are each equal to 100%.

This is admittedly a tough sentence to get across simply, considering that "cellulose" is repeated in several different contexts. Yet two guiding principles would have made it much clearer: 1., always put for your reader first things first (here, the meaning hangs on the final phrase, "each equal to 100%," which comes at the end of a complicated series); and 2., clearly separate items in a series. (The second rules seems to me one of the most important in technical writing where so many things have to be listed so often.) Here is the recast sentence:

> If all the cellulose is converted to ethyl cellulose, each of the following is then equal to 100%:
> 1. reaction conversion of cellulose to ethyl cellulose.
> 2. proportion of cellulose reacted.
> 3. reaction yield of ethyl cellulose based on cellulose.

The changes are not great, certainly, but in the process we have eliminated the indisputable notion of a per cent being equal to a per cent, and have arranged the series so that both the eye and the mind together can grasp the information immediately. Sin number one then can be handled, one way, by cutting out indirect Rube Goldbergish contraptions and hitting your points directly on their heads, one, two, three.

## FUZZINESS

The remaining sins I shall discuss are extensions of this primal one, disregard for the reader. Sin number two may be designated as Fuzziness, that is, a general fuzziness of communication — vague words, meaningless words, wrong ones. The reader uses his own experience to supply the meaning in such writing; the writing itself acts only as a collection of clues. The military specializes in this sort of thing. I recall an eerie warning in an Air Force mess hall: "Anyone smoking in or around this mess hall will be dealt with accordingly." It still haunts me. Here is a caution in a handbook of technical writing with which you may be familiar: "Flowery, euphemistic protestations of gratitude are inappropriate." We know what this means, of course, but we ourselves supply the exact meaning. It happens that a "euphemism" is "the substitution of an inoffensive or mild expression for one that may offend or suggest something unpleasant." At least, that's what Webster's Collegiate says it is.

Here are some other examples: "The intrinsic labyrinth of wires must be first disentangled." The writer meant "network," not "labyrinth"; and I think he meant "internal" for "intrinsic" and "untangled" for "disentangled." Item: "The liquid contents of the container should then be disgorged via the spout by the operator." Translation: The operator should then empty the container."

Prescription to avoid sin two: use concrete, specific words and phrases whenever you can, and use only those words whose meaning you are sure of. (A dictionary, by the way, is only a partial help in determining the correct and *idiomatic* use of a word.) English is perhaps the richest of languages in offering a variety of alternatives for saying the same thing.

## EMPTINESS

Sin three might be called the sin of Emptiness. It is the use of jargon and big words, pretentious ones, where perfectly appropriate and acceptable small and normal words are available. (There is nothing wrong with big words in themselves, provided they are the best ones for the job. A steam shovel is right for moving a boulder, ridiculous for picking up a handkerchief.) We may want to connect this sin with the larger, more universal one of pride, the general desire to seem important and impressive. During World War II a high government official devoted much time to composing an effective warning for a sticker to be put above light switches. He emerged with "Illumination is required to be extinguished on these premises on the termination of daily activities," or something of the sort. He meant "Put the lights out when you go home."

The jargon I'm talking about is not the technical language you use normally and necessarily for efficient communication. I have in mind only the use of a big word or a jumble of words for something that can be said more efficiently with familiar words and straightforward expressions. I have in mind also a kind of code language used to show that you're an insider, somewhere or other:

"Production wise, that's a hightype machine that can be used to finalize procedure. The organization is enthused." There is rarely any functional justification for saying "utilize" or "utlization" for "use," "prior to" for "before," "the answer is in the affirmative or negative" for "yes or no," or for using any of the "operators, or false verbal limbs," as George Orwell called them, like "render inoperative," "prove unacceptable," "exhibit a tendency to," "serve the purpose of," and so on and on.

Again, one can handle this sin simply by overcoming a reluctance to saying things directly; the most complex things in the world can be said in simple words, often of one syllable. Consider propositions in higher math or logic, the Supreme Court decisions of men like Brandeis and Holmes, the poetry of Shakespeare. I cannot resist quoting here Sir Arthur Quiller-Couch's rendition in jargon of Hamlet's "To be or not to be, that is the question." I am sure you all know the full jargon rendition of the soliloquy. "To be, or on the contrary? Whether the former or the latter be preferable would seem to admit of some difference of opinion."

## WORDINESS

Sin four is an extension of three: just plain Wordiness. The principal here is that if you can say anything with more words than necessary for the job, then by all means do so. I've already cited examples of this sin above, but compounded with other sins. Here is a purer example, the opening of a sentence in a technical writing handbook: "Material to be contained on the cover of the technical report includes. . . ." This can be reduced "The cover of the technical report should include. . . ." Another example, less pure: "The front-mounted blade of the bulldozer is employed for earth moving operations on road construction jobs." Translation: "The bulldozer's front blade moves earth in road building." Item: "There is another way of accomplishing this purpose, and that is by evaporation." Translation: "Evaporation is another way of doing this." Instead of saying simply that "the bulldozer's front blade moves earth," you say it "is employed for earth moving operations," throwing in "employed" and "operations," as though "moves" alone is too weak to do this tremendous job. The cure for this sin? Simply reverse the mechanism: say what you have to in the fewest words.

## BAD HABITS

Sin five, once again an extension of the immediately preceding sin, is a matter of Bad Habits, the use of pat phrases, awkward expressions, confusing sentence structure, that have, unfortunately, become second nature. Again, I'm not alluding to the perfectly natural use of familiar technical expressions, which may literally be called clichés, but which are not efficiently replaceable. Sin five is a matter of just not paying attention to what you say, with the result that when you do suddenly pay attention, you see the pointlessness or even humor of what you have set down. Perhaps the most common example of this sin is what has been called "deadwood," or what may be called "writing for the simple minded." Examples: "red in color," "three in number," "square in shape," "the month of January," "the year 1956," "ten miles in distance," and the like. What else is red but a color, three but a number, square but a shape, January but a month, 1956 but a year, ten miles but a distance? To say that something is "two inches wide and three inches long" is to assume that your reader can't figure out length and width from the simple dimensions "two inches by three inches." I once read that a certain machine was 18 feet high, "vertically," the writer made sure to add; and another time that a certain knob should be turned "right, in direction."

A caution is needed here. There are many obvious instances when qualification is necessary. To say that something is "light," for example, is plainly mysterious unless you add "in color" or "in weight" or, perhaps, "in density" (unless the context makes such addition "deadwood").

I would include under sin five the locations "as far as that is concerned" (lately shortened to "as far as that"), "as regards," "with regard to," "in the case of" ("In the case of the case enclosing the instrument, the case is being studied"). These are all too often just lazy ways of making transitions (and, thus, incidentally, quite justifiable when speed of writing is a factor).

## THE DEADLY PASSIVE

Sin six is the Deadly Passive, or, better, deadening passive; it takes the life out of writing, making everything impersonal, eternal, remote, and dead. The deadly passive is guaranteed to make any reading matter more difficult to understand, to get through, and to retain. Textbook writers in certain fields have long ago learned to use the deadly passive to create difficulties where none exist; this makes their subject seem weightier, and their accomplishment more impressive. (And, of course, if this is ever what you have in mind on an assignment, then by all means use the deadly passive.) Sin six is rarely found alone; it is almost indispensable for fully carrying out the sins of wordiness and jargon. Frequently, of course, the passive is not a sin and not deadly, for there simply is no active agent and the material must be put impersonally.

Examples of this sin are so easy to come by, it is difficult for me to find one better than another. (Take that last clause: why couldn't I say "I find it difficult to get one better than another." No reason at all.) Here is a relatively mild example of sin six.

> The standardization of procedure in print finishing can be a very important factor in the efficient production of service pictures. In so far as possible, the smallest number of types and sizes of paper should be employed, and the recommended processing followed. The fewer paper grades and processing procedures used, the fewer errors and make-overs that are likely. Make-overs are time-consuming and costly.

Here it is with the deadly passive out and some other changes made:

> To produce service pictures efficiently, a standard way of finishing prints can be very important. You should use as few types and sizes of paper as possible, and you should follow the recommended procedure for processing. In this way, you will make fewer errors, and have to re-do less work. You will save time and money.

Associated with the deadly passive, as you might see from the two passages above, is the use of abstract nouns and adjectives for verbs. Verbs always live; nouns and adjectives just sit there, and abstract nouns aren't even there. Of course, there are a number of other ways of undoing the passivity of the passage I quoted, and of making other improvements, just as there were other ways of handling any of the specimens I have cited in the train of horrors accompanying my pageant of sins.

## MECHANICAL ERRORS

Finally we come to sin seven, the one considered the deadliest by many, and not only by teachers of English but by technical writers and technologists of various sorts: Mechanical Errors. I don't think this sin the deadliest at all. It does happen to be the easiest one to recognize, the one easiest to deal with "quantitatively," so to speak, and the easiest one to resist. I suppose it is considered deadliest because then those who avoid it can so quickly feel virtuous. It can promptly be handled by good works alone. Actually most technical writing happens to be mechanically impeccable; not one of the examples I have used tonight had very much mechanically wrong with it. If anything, technical people tend to make too much of formal mechanics. I remember working with a physicist who had much trouble saying anything in writing. While his general incapacity to write was almost total, one thing he did know, and know firmly, and that was that a split infinitive was to be abhorred. That, and using a preposition to end a sentence with. He could never communicate the simplest notion coherently, but he never split an infinitive or left a preposition at the end of a sentence. If Nobel Prizes were to be awarded for never splitting infinitives or for encapsulating prepositions within sentences, he would be a leading candidate.

There are handful of mechanical errors which are relevant to technical writing, and these are important because they are so common, especially in combination with other sins. (Split infinitives or sentence-ending prepositions, need I say, are not among them.) These are dangling participles and other types of poorly placed modifiers, and ambiguous references. There are others, a good number of others, but the ones I mention creep in most insidiously and most often.

Here are some examples stripped down to emphasize the errors:

*Raising the temperature, the thermostat failed to function.*

Who or what raised the temperature? Not the thermostat, I presume; and if it did somehow, as the result of current flowing in its wiring, then this ought to be said quite plainly.

*The apparatus is inappropriately situated in the corner since it is too small.* What is too small? Apparatus or corner?

*Every element in the device must not be considered to be subject to abnormal stress.*

What is meant here is that "Not every element in the apparatus must be considered subject to abnormal stress," almost the opposite of the original taken literally.

I should like to conclude by emphasizing something I glanced at in my introduction, that the seven sins of technical writing are to be avoided not so much by a specific awareness of each, accompanied by specific penance for each, as by a much more general awareness, by an attitude toward subject matter, writing process, and reader that can best be described only as "respectful." You will not help yourself very much if you rely on such purely mechanical aids as Rudolph Flesch's formulas for "readable writing," or on slide rules measuring readability, much as you may be tempted to do so. These can be devil's snares, ways to make you think you are avoiding sin. There are no general texts, either, at present that will help you in more than very minor ways. The only aids you can safely depend on are the good book itself, that is, a good dictionary (there are many poor ones), any of the several volumes by H. W. Fowler, and occasional essays, here and there, by George Orwell, Jacques Barzun, Herbert Read, Somerset Maugham, and others. And these, I stress, can only be *aids*. What is most important in eliminating sin in technical writing is general attitude — as it may well be in eliminating sin anywhere.

I repeat that technical writing must be as rationally shaped as a technical object. A piece of technical writing, after all, is something that is shaped into being for a special purpose, much as a technical object. The design engineer should be guided in his work by the requirements of function almost alone. (Of course, if he happens to have a boss who likes to embellish the object with useless doo-dads, why then he may have to modify his work accordingly to keep his job — as automobile designers do every day; but we try never to have in mind unreasonable situations of this sort.) It is as pointless for the design engineer to use three bolts where one would do (both for safety and function), to make an object square when its use dictates it should be round, to take the long way through a process when there is a short way, as it is for the technical writer to commit any of the sins I have mentioned.

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*Talk presented at the March meeting of the Albuquerque Chapter, Society of Technical Writers.*

# NEED FOR INGENUITY

**By John F. Doss**
**Data Specialist**
**Headquarters, Mobile Air Material Area**
**Brookley Air Force Base, Alabama**

During my activities with the Air Force Quality Control Division I have frequently had the impression that our contractors think that the Air Force discourages or even condemns innovation and ingenuity. This attitude of the contractor is sometimes caused by Air Force Quality Control people who have a tendency to regard any specification requirement as a mandatory one. This tendency should not be exhibited, however, when handbook specifications are involved, for there are only five mandatory requirements in the preparation of technical data. As a consequence, this paper was written for the express purpose of dispelling the idea that the Air Force does not want you to exercise all the skill and talent that you have at your command.

Before discussing two problem areas of technical data that call for your ingenuity, I want to tell you what our job is in Quality Control and how we have been doing it.

Our authority as an Air Materiel Area Headquarters derives, of course, from Headquarters, Air Materiel Command (AMC). Our mission is simply to implement the Command policies throughout our geographical area.

The AMC policies for technical data inspection are simple ones:

(1) We are to assure the acceptability of the handbook.

(2) We are to inspect and accept the handbook at the contractor's plant.

The acceptability of a handbook involves Quality Control's getting assurance that the instructions in the book are complete and adequate, and that the book conforms to the requirements of the contract and its applicable specifications.

Quality Control's primary purpose is to assure the acceptability of technical instructions. Because technical data involve special knowledge and experience, it follows that the most likely place for our inspection is at the manufacturer's plant where the equipment is built and the data are prepared. Since Air Force technical orders are purchased only for equipment peculiar to the Air Force, we ordinarily have at the manufacturer's plant an Air Force resident inspector who has the special knowledge and experience required to determine acceptability.

To implement the Air Materiel Command's policy, we at Mobile within the last year moved the inspection responsibility from the Air Procurement District Headquarters to the Air Force Quality Control Representative at the contractor's facilities.

Of course, this movement of responsibility has required a great amount of training. The handbook inspectors at the Air Procurement Districts became staff specialists. They had to learn new roles. At the same time the Air Force Quality Control Representatives at the plants had to learn how we wanted them to inspect handbooks. In our shuffling of these responsibilities we had to scrap a lot of our old habits and develop new techniques. This purging of our inspection procedures has caused a healthier and a more positive attitude toward our control of technical data.

## AUTHORITY OF AIR FORCE INSPECTOR

At this point, it is worth our while to examine the authority that the Air Force inspector has in doing his job. The inspection clause in every contract requires Air Force inspection and acceptance in accordance with AMC Regulation 5-12. This regulation tells us two important things:

(1) What authority the inspector has.

(2) The purpose of the specifications that govern the preparation of handbooks.

With regard to the inspector's authority the regulation says, and I paraphrase, Quality Control agencies are given a latitude of authority in specification interpretation. Sound judgment should be used to permit economy, facilities development, expeditious delivery, and acceptance flexibility. This authority is given to the inspector so that we can get the handbook out of your plant and to the printer.

The exceptions to this authority as stated in the regulation are, for the most part, obvious ones. The Quality Control inspector cannot allow any deviation to the following general specification requirements:

(1) Page size and dimensions of the text.

(2) Security classification.
(3) Information on the title page and A page.
(4) Legibility and reproducibility.
(5) Applicable technical coverage.

More important, AMC Regulation 5-12 states that the specifications are *developed* for and *intended* as *nominal standards* for the composition, the inspection, and the acceptance of handbooks. The words "developed, intended, and nominal" have been emphasized because the specifications are sometimes considered as containing the maximum as well as the minimum requirements.

Since the specifications are only the nominal standards, the contractor must be willing to expand those requirements to suit the peculiarities of the equipment involved. To think that the specification delineates the maximum requirements destroys your ingenuity at a time when it is needed most. For example, let's suppose that you are preparing a maintenance book for an airborne device that absorbs radar waves, and the instruction for its maintenance will not be fully satisfied if you follow the specification. Obviously, the peculiarities of the equipment, not the specification, dictate its maintenance requirements. Therefore, if you consider the specification in terms of maximum requirements, you will be remiss in furnishing the technical data that the Air Force wants. The Air Force inspector cannot allow deviations from the nominal requirements for technical coverage. If the maintenance instructions for this anti-radar device require a deviation from standards, then the inspector will get the authority for deviation from the prime maintenance people. But first he has to know about it. You are the ones who have to tell him.

Let's revert momentarily to another exception in the Air Force inspector's authority, for this exception may not be self-evident. The information on the title and A pages is vital not only to our filing and indexing system, but also to our method of automatic distribution. A technical order that has the wrong title may not be properly distributed, because Air Force activities predetermine their publication requirements largely upon the title of the book. Wrong titles or any other misleading information on the title page may throw the Air Force distribution system out-of-kilter for that book. Security classification, page size, and the rest of the exceptions are primarily due to the standardization of the Air Force technical order library.

The important exception to our authority is the technical coverage required by each detailed specification. It was this requirement for technical adequacy that demanded the transfer of this job to the equipment inspector at your plant. It is also in this area that the demands for your ingenuity are the greatest.

The first of two problems is one that is built into every detailed specification. It is a problem we can call "writing for the average maintenance man." It is a technical writing problem that is frequently discussed.


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But, like the weather, no one ever seems to do anything about it. The problem is really one of depth. The question is: How much should be explained in a technical order?

## WHO IS THE AVERAGE MAINTENANCE MAN?

For an answer let's look at a fairly recent specification. MIL-H-25098 states the following about the depth of technical coverage for a maintenance handbook.

> "TEXT CONTENT — In order that maintenance personnel may obtain a general knowledge of the aircraft, this handbook shall consist of a general but factual over-all description of the airplane. This description will be kept at the general aircraft familiarization level, and no specific maintenance instruction will be included. Detailed theory shall not be included; any theory given shall be in the form of a brief general discussion in language or illustration understandable to the average maintenance man."

This specification and other similar ones are not much help for they state that your technical instructions are to be written simply and clearly. But as to what the "average maintenance man" amounts to is neither simple nor clear. I daresay that it would not help if we knew precisely what the average was. If we could add up all our Air Force maintenance people like digits and divide them for an average, we would find that such a person does not exist. Since he does not exist, except in specifications, it is absurd to conjure a picture of the average maintenance man when you write your instructions.

To help clear up this specification requirement, let's examine an actual case. Last May, two jet aircraft flying over southwest England were approaching a tanker for inflight refueling. One of the jets, making a 180° turn in his approach to the tanker, flew into the other. The collision tore off the right wing of the first plane and the tail and left wing of the other. The pilot in the plane that was making the turn immediately jettisoned his canopy and pulled his seat ejection lever to get out. Nothing happened. The pilot, a husky fellow and in a hurry, shoved the ejection seat lever back down to the floor — something you're not supposed to be able to do — and yanked it up again. Still nothing happened. In desperation he loosened his seat belt to jump. The moment he loosened his belt he was thrown out of the plane. On his way out his right leg struck either the windshield or the wing and was torn and broken. His parachute opened. That he had broken his leg was not apparent to him until he noted, on his way down, that his face was getting wet from his own blood.

The pilot in the other aircraft also blew off his canopy, but he was not able to eject either. Although he managed to get out somehow, he never pulled the ripcord on his parachute.

The accident occurred simply because one pilot could not see the other. Other than recommending that pilots should exercise caution when other aircraft were in their vicinity, the Board investigating the accident could find no remedy to prevent a reoccurrence. On the other hand, the cause for the failure of the seat ejection contraption was discovered. A wire bundle had been misrouted during a modification of the cockpit. A modification technical order had required changing this wire bundle.

The Board found on one of the crashed planes that the wire bundle was not routed according to the diagram contained in the technical order. Instead it was routed between the seat ejection bell crank assembly and the resistor box, which is mounted forward of the bell crank. The wire bundle showed indentations that cut completely through the insulation at the point where the wires would have been forced against the edge of the resistor box by the motion of the bellcrank. The Board determined that the thickness of the wire bundle at this point could have prevented sufficient travel of the bellcrank to pull the initiator pin of the ejection mechanism.

During this investigation the Board looked at other aircraft in England for the same condition. They discovered, no doubt to their horror, that this was not an isolated case. Wire bundles had been misrouted in many of the aircraft in which this modification had been performed. It was the Board's opinion that a thorough study of the diagram contained in the technical order was necessary to determine the correct routing of the wire bundle and that the diagram was not sufficiently clear in this respect. In part their recommendation was:

> "Maintenance personnel should be reminded of the serious consequences that can result from the smallest error in maintenance procedures.
>
> "Agencies preparing technical orders and other maintenance directives should be made aware of the fact that much of the work performed in compliance with such instructions must be accomplished by personnel who have a *low experience* level in aircraft maintenance. Therefore, it is essential that all publications describe such work in clear detail. When diagrams are used, all components should be plainly labeled to minimize the possibility of mistakes."

The contractor also investigated the matter, reviewed the text and the illustrations, and considered the Board's recommendation. His findings are worth our consideration.

The contractor felt that the instructions provided were adequate to prevent the wire harness from being misrouted. He noted that the technical order did not change the routing of the harness and that the technical order could, therefore, be complied with only if the harness were routed on the inboard side of the linkage box. The contractor admitted, however, that there was one exception to the adequacy of this data. It was the omission of any direct reference to the Aircraft's maintenance handbook, which calls for an operational check whenever work that could affect linkage adjustment is performed on the seat.

You have heard the results of the investigation; you have heard that the Accident Board found the illustrations to be lacking in clarity; you have heard their recommendations; and you have heard the results of contractor's investigation. Do you think that the handbook was at fault or even partly so?

This rhetorical question is not an idle one. It should be noted that the contractor's answer has begged the questions. His reply was, in essence, that the instructions were there, but that those instructions were not complied with. This analysis is true. But we have a question as to the cause. The immediate cause is clear: a wire bundle was misrouted. Misrouting occurred because the technical order instructions were not followed. So far there is no dispute. But, we do not know what it was that started this sequence of events.

It would be utter foolishness to claim that the technical order's lack of instructions caused it all. We would also play the part of the fool if we contended that the maintenance people who did the modification were incompetent, for several other aircraft in England and in this country were found to have the same condition.

## WHY DO IT THE HARD WAY?

My idea is that the bundle was misrouted because it was easier to do it that way. That it was the wrong way was not highlighted by the modification instructions. I think that we can now make this categorical statement: When easy ways to accomplish a job are apparent and are contrary, if accomplished, to the results intended, the instructions should explain why the difficult way is required. If this concept can be taken as a principle in technical writing, then you must demonstrate and justify the need for all work requirements that may violate the common sense of the person who does the work. You must consider the work you are describing in two ways. The instructions that are difficult to comply with must be explained when an easy, but wrong, method may occur to the person doing the work. And I hope that you will consider this point in the data you are now writing, for your instructions are frequently on too high a level for us.

Any technical handbook, regardless of the equipment described, has only two aspects:

(1) Its text or its technical content.

(2) Its structure or the format in which the text is presented.

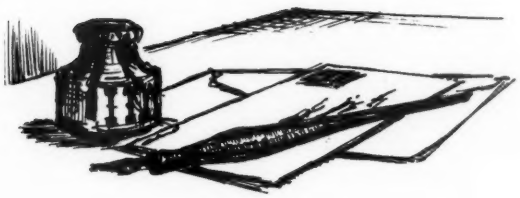
We have considered the need for ingenuity with regard to one part of a handbook; the format aspect has just as much demand for your attention. The way you display your instructions has a direct relationship to the effectiveness of those instructions. Again, we must remember that the format requirements in our specifications are intended as nominal standards. They contain the minimum requirements, not the maximum. You should also remember that the Air Force inspector has the authority to waive any of the format requirements when they present problems to you.

I have heard scores of problems in connection with Air Force format requirements, but I have yet to hear a format problem from a contractor who did not present an excellent solution at the same time. The problems are frequently mechanical ones such as ". . . the typewriter cannot be tabulated in preparing an Index page for a parts breakdown to satisfy the Air Force requirement of twelve columns per page". If this is true, then prepare 6 columns per page. Sometimes, though, the format problem is the result of the peculiarities of the equipment being described.

For example, consider an exploded view of a complicated gear box that has 190 parts called out. If you want to refer to any part illustrated in this figure, you will have a rather difficult search to make. The callouts for large exploded views are seldom numbered consecutively from top to bottom or from left to right. They follow some other sequence, and the numbers are scattered all over the drawing. This imaginary example would violate our legibility requirements. *Legibility* is the quality of being easy to read, and an Air Force inspector could reject it because the exploded view is not easily read. There are probably several solutions that would increase the figure's legibility, but the most obvious one is the location device used on every road map. If this method were used, then the callouts would also reference that segment of the drawing in which the part is illustrated. This device is not forbidden by specification; something of this sort is required. The purpose of a figure is always defeated if it is difficult to use.

You should keep in mind, however, that the ingenuity that the Air Force wants is not "lily gilding". Cartoons, for example, can make a useless point just as well as an important one. When a cartoon can make an important point, we want it. Similarly, color wisely used in a drawing can increase understanding; color can also make the drawing pretty. Use color when it will help us to understand what you are explaining. MIL-H-5474A requires that the ". . . text shall be brief and concise", but sometimes repetition is necessary to emphasize a point. Repeat to teach but not to dull our senses.

In summary, your job is to give the Air Force all the technical data it needs to keep your equipment in good operating condition. That the Air Force does not know precisely how much data is needed is the reason why each specification must be considered as the minimum standards for the handbook. That the Air Force does not know how much is the reason you are preparing the handbook. In the final analysis you are in the best position to judge what data the Air Force needs and how it should be displayed. Your willingness to invent and to exceed the minimum requirements of Air Force specification will have a direct bearing upon the effectiveness of Air Force weapons and their supporting equipment.



## LETTERS FROM READERS

*To the Editor:*

Thank you for . . . the Fall 1956 issue of TECHNICAL WRITING REVIEW. It is interesting to see how successive issues are growing in size and the current number looks particularly impressive. The Presentation of Technical Information Groups in Great Britain are also making steady progress, but do not yet produce their own journal, although we aim to publish about four of our best papers each year. Up to the present we have not considered any of our current season's papers suitable, but we are hoping there will be some by the end of the season. . . .

I would like to remind all members of STW that if business engagements ever chance to bring them to this country we shall always be very glad to see them at our London or Birmingham meetings. I am sure we could have some interesting discussions.

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P. D. PATTERSON
DUNLOP RESEARCH CENTRE

*NOTE: Mr. Patterson is former secretary of the Midland Group of the Presentation of Technical Information in Birmingham. Regular REVIEW readers will recall his article, "The Function of a Technical Writer in Industry," which was printed in the June 1955 issue of the REVIEW.*

*To the Editor:*

I have been asked to request from you a written confirmation which will permit us to reproduce the article entitled "The Technical Rapport", by John Fallon (TECHNICAL WRITING REVIEW, Vol. 4, March 1957).

Your cooperation in this matter would be greatly appreciated.

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*To the Editor:*

John Fallon's "The Technical Rapport" is a timely article for our organization. May we reprint it for distribution to our engineering and editorial groups?

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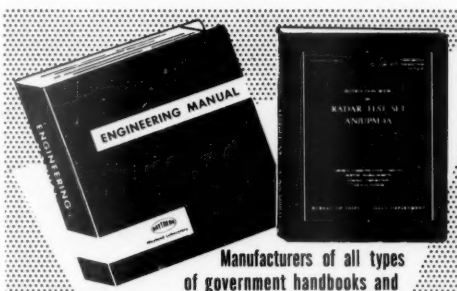


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# Convair Writers Proof Writing Accuracy

By Paul B. Lyons
Publications Editor
Convair (San Diego)
Division of
General Dynamics Corporation

*The author checks an engine accessory removal procedure with the assistance of a mechanic, photographer, and photo coordinator.*

Writers of maintenance handbooks at Convair (San Diego) gained a new insight into the needs of airplane mechanics recently when they were assigned the task of performing maintenance procedures which they had described in their own writing. Although not new to the aircraft industry, a program of this magnitude had never before been performed by publications personnel at Convair. The experience proved significant and constructive.

Since all aircraft are produced at Convair on rigid schedules, it was first necessary to negotiate with the Air Force for loan of a delivered, and hence tactically equipped, F-102A All-Weather Interceptor. This took "some doing." The fulfillment of the request initially depended upon Convair's compliance with Air Force regulations concerning bailed (loaned) aircraft. The using department, Service Publications, submitted a general plan to the Air Force to show how the aircraft would be utilized during the proofing program. Included in the general plan, and in compliance with Air Force regulations, were details of projected procedures that would be given adherence: an inspection (inventory) of aircraft equipment on arrival at Convair, preservation of engine and accessories, intended compliance with Time Compliance Technical Orders that might become effective during time of bailment, and a Safety of Flight Inspection prior to return of the aircraft to the Air Force.

The general plan first outlined all those removals and reinstallations that could be performed, without power application of any kind, while the engine remained installed inside the aircraft. Second, the removal of the

engine and additional component replacement operations were itemized. Next, the adjustment and rigging of components and systems, with various combinations of power on the aircraft, were included. The final portion of the plan programmed the operation and testing of all systems.

A requirement that the aircraft be restored to a flight-ready condition at the end of the program gave the plan an added advantage. As each step of the program progressed, various airplane systems would be opened (disturbed) and, after reassembly and adjustment, the maintenance handbook writer would have individual opportunities to trouble-shoot and supervise the repair of those systems which did not operate properly.

## DETAILS OF PROGRAM

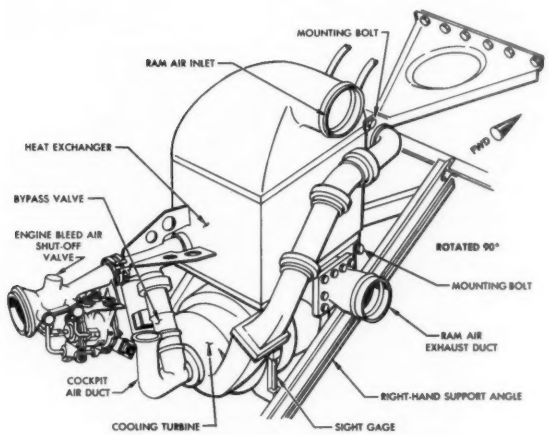
When bailment negotiations were completed, Service Publications received notification of the aircraft's estimated time of arrival from the Air Force, and we began detailed planning for the program. Some of the considerations were:

(1) Arrangements for allocation of necessary shop space and the assignment of mechanics to assist in performance of our project. Since San Diego's weather is balmy, we decided to perform the proofing program outdoors where (figuratively) space, light and fresh air is unlimited. We also decided that the caliber of shop mechanics chosen to assist us with the program should be those with little or no F-102A experience, so that we would be able to simulate an approach similar to that faced by Air Force personnel as new F-102A bases are organized and opened. We hoped that our handbooks, in the hands of inexperienced mechanics, would direct their efforts in a way to prove the adequacy and practicability of our instructions.

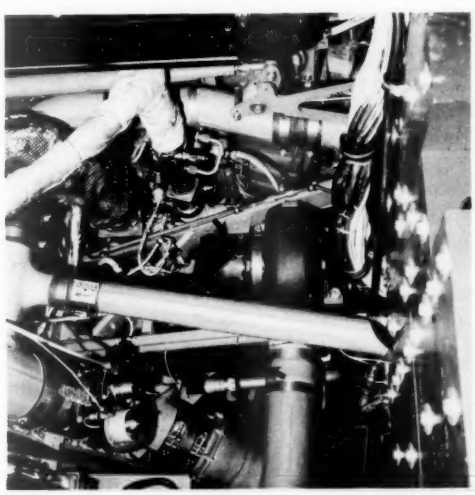
(2) Detailed scheduling of the procedure to be proof-tested required extensive thought and planning. It was necessary to insure the safety of mechanics and writers while they performed the projected work, to schedule operations according to accessibility of various components during various phases of the program, and to schedule operations dependent on certain power application phases — that is, with various combinations of external electrical, hydraulic, or pneumatic power connected to the aircraft.

Each writer completed prepared forms to accomplish proper operation scheduling. On these forms, the writers indicated the system or components that were to be removed, installed, adjusted or operationally checked; in addition, the forms included blocks so that the conditions necessary for the proposed operation could be indicated. The conditions included such items as: the power connections necessary, the compartment to which access was necessary, aircraft on jacks or on the ground, engine installed or removed, as well as requirements for various special tools or equipment.

Approximately 200 of the operations forms were completed to affect virtually every page in the twelve F-102A maintenance handbooks. The forms were next arranged in a respective order of conditions necessary for each operation. For instance: An operation which required connection of electrical and hydraulic power obviously could not be included with operations that required the removal of components connected to elec-




*F-102A Refrigeration unit installation. Handbook illustration.*



*F-102A Refrigeration unit as it actually appears to the mechanic looking upward.*

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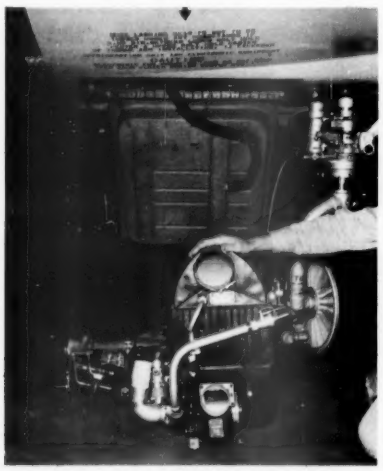
trical or hydraulic systems. Another example: More than one operation requiring access to the cockpit by more than one person could not be scheduled at the same time, since there is insufficient space for more than one person in that area.

## WORK DIVIDED INTO ONE-WEEK PACKAGES

After arranging the forms into a proper operational sequence, they were divided into six packages, each representing the estimated amount of work that could be accomplished within each of the six weeks allotted to the program. The forms were bound in duplicate books, one to serve as a record for Service Publications and the other for use of Shop and Inspection personnel; both books were maintained on the job near the aircraft. The writers made progressive notations in both books concerning each job and as they did, the shop inspector (present to observe all operations) added a stamp of approval to ensure the quality and airworthiness of the work performed. The bailment contract agreed for return of the airplane to the Air Force within a limited time, and the operation books provided an essential means of checking progress at any time during the program..

A full-time photographer assigned to the program took detailed photos during each procedural step of the removal, installation or rigging, that was proofed. A total of 800 photographs were taken, including a photo survey of equipment installations in all compartments of the airplane. The photographs now serve as a basis for new illustrations and for revision of existing illustrations in the F-102A handbooks. The photographs also provide the handbook writers with a true-perspective illustrated reference source for equipment installations in all the aircraft compartments. It is obvious that the photographic library will represent a considerable advantage for the handbook writers in the future.

The writers displayed great interest, or eagerness, to test their handbook procedures — after the initial



*F-102A Refrigeration unit, removed.*

shock of sudden confrontment with an airplane and instructions to prove the accuracy of their published recommendations subsided. The program brought real life to the handbooks for them; all gained a new perspective into the mechanics' needs in a handbook, and an awareness of his attitude of confusion or indecision when a handbook procedure did not provide adequate information.

Several rather humorous situations developed during operational check-out procedure of the systems, when writers and mechanics attempted to place systems in operation by use of a procedure which did not properly identify, or locate, the circuit breakers and switches controlling the system; or, perhaps did not specify that a certain type of external power should be connected. (Data items of those types are sometimes omitted by a writer due to the seemingly obvious nature of the procedure. However, it was learned that these requirements are not at all obvious to the inexperienced mechanic, and that he may spend hours in trouble-shooting a system which is perfectly operable when properly energized.)

## HANDBOOKS PROVED ADEQUATE

In general, the handbooks proved adequate for the purposes intended. Of the changes which will be made, many are due to over-simplification of procedures in which accessibility is a much greater problem than formerly realized. Because a completely equipped aircraft is seldom available for reference during preparation of a basic handbook, the writers frequently rely on blueprints. These, of course, show essential installation details only of the component in question. Hence, some installations which we had assumed as being quite straightforward were actually very complex by reason of accessibility, adjacent component installations, plumbing, wire harnesses and structural deterrents.

A sidelight of the program was the interest shown in the proceedings by other engineering departments at Convair. Our service engineers were present to observe many of the operations, and in several instances, operations were performed especially for their benefit in an effort to find solutions for problems of service and maintenance which had been reported by field service representatives. Members of the engineering design groups were called when maintenance difficulties were encountered, and some design changes were proposed where such changes were the only solution. Great interest was shown by the Ground Support Group in our Engineering Department, since proofing of the handbooks also involved the use and proofing of the special support tools and equipment that is provided to the Air Force with the aircraft. Suggestions were made for additional special tools and for the revision of existing tools when the need became evident during the program.

The proofing program was completed and the aircraft was turned over to the Convair flight line organization about ten days prior to the bailment contract termination date. On the flight line, the aircraft underwent the standard preflight inspection and operational check-out given all production aircraft, and was then returned to the Air Force as scheduled.

Convair Service Publications' tentative planning calls for conducting similar programs on an annual basis as long as the F-102A aircraft are in production. During the next program we hope to use experienced F-102A flight line mechanics who will be able to point out the practical short-cuts they have learned. The inexperienced mechanics, used on this program, served their purpose well in pointing out procedures that were difficult to follow, or inadequate for other reasons. However, these men who lacked the experience to suggest improvements may have proven that a procedure, while inefficient, could in some cases be performed. Until the next program is effected, service experience and field reports will be an additional source of improved maintenance practices which can also be proof-tested and incorporated in the handbooks.

As a result of the completed program, the entire series of F-102A Maintenance Handbooks (a total of twelve) will be reissued in the near future. We feel that the improved handbook data will result in savings of many maintenance manhours at Air Force bases throughout the United States. Certainly the program has already instilled a new interest and insight in the writers which will result in more effective writing.

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# BRITISH DEMAND FOR TECHNICAL WRITERS

**By P. D. Patterson**
**Dunlop Research Centre, Erdington**
**Birmingham 24, England**

As far as is known, no attempt has been made to consider the employment of technical writers on a statistical basis, apart from a questionnaire circulated to selected recipients by a sub-committee of the Presentation of Technical Information Group in London. This produced a certain amount of information from a relatively small sample of the user population. It was thought therefore, that useful information might be obtained more objectively by making a day-to-day examination of the advertised vacancies for this type of specialist in the 'Situations Vacant' column of a national newspaper known to carry a heavy volume of advertisements for specialist staff. The DAILY TELEGRAPH AND MORNING POST was selected for this purpose and the appropriate columns examined every weekday for a period of three months, during which 80 advertised vacancies were recorded.

These records were analysed in different ways and the results are summarised in the following review.

Since technical writers are advertised for under a variety of names, it became necessary at the outset to define broadly the range of functions to be covered. This was assumed to be the presentation of technical information to individuals skilled in another branch of technology, non-technical administration and members of the general public. This broad definition included such positions as writers of advertising copy on technical subjects, technical editors, technical journalists, technical handbook writers and the compilers of service leaflets or process instructions.

Technical information officers were not included, since this work was considered to involve no 'authorship' function. Technical illustrators were also omitted, but it is of interest to record that advertisements under this heading amounted to about 25% of the requirements under the broad heading of 'technical writers'. Other functions not included in the survey were non-technical publicity staff, personnel staff, technical clerks and technical representatives.

The 'Situations Vacant' columns in the TELEGRAPH were examined for 80 successive weekdays (including Saturdays) starting on October 11th, 1956. Advertisements in the categories outlined appeared on 56 days and the total number recorded amounted to 80, giving an overall appearance rate of 1 per day.

## DESCRIPTIONS USED

These were many and varied, as can be seen from the following list of appearances:

| | | | |
|---|---|---|---|
| Technical Writer | 27 | Staff Writer | 1 |
| Technical Author | 15 | Information Officer | 1 |
| Technical Copywriter | 7 | Engineer Writer | 1 |
| Publicity Assistant | 4 | Technical Handbook Writer | 1 |
| Copywriter | 4 | Advertising Assistant | 1 |
| Publications Assistant | 4 | Technical Information Officer | 1 |
| Editor | 2 | Engineer Journalist | 1 |
| Technical Editor | 2 | A 'Young Man' | 1 |
| Technical Journalist | 2 | A 'Person' | 1 |
| Senior Reporter | 2 | | |
| Editorial Assistant | 2 | | |

It is clear from the wide variety of terms employed that there is no general agreement on a title by which to describe a specialist in the presentation of technical information, although 'Technical Writer' was the most popular and appeared in nearly 34% of the advertisements; next in popularity came 'Technical Author' which appeared in nearly 19% of the total.

The wording of the advertisements made it clear that, not only was there no general agreement on a title, but some of the titles were used extremely loosely. This can be seen when it is confirmed that study of the wording showed that each of the posts quoted above involved the main function of presenting technical information (as previously defined) notwithstanding the actual title chosen for the vacancy advertised.

## BROAD CLASSIFICATION

In order to obtain some idea of the relative demand for different types of technical writers, the advertisements were grouped according to a more logical description of the functions, with the following result.

| | |
|---|---|
| Technical Writer (defined as a compiler of service instruction) | 45 |
| Technical Advertising | 15 |
| Technical Author (defined as a post calling for definite creative ability) | 11 |
| Technical Editor | 7 |
| Technical Publications "Assessor" | 2 |

In considering the significance of these figures, it should be realised that no allowance has been made where an advertiser has repeated the same advertisement after an interval of time. It is considered justifiable to ignore this factor as having little influence on the 'demand' for technical writers, since the repetition of an advertisement means either that additional staff are required, or that the earlier advertisement failed to produce a satisfactory applicant.

## DISTRIBUTION BY INDUSTRY

Details of the firms advertising are given in the Appendix. Classification by industries gives the following pattern:

| | | | |
|---|---|---|---|
| Electronic engineering | 25 | Chemical | 2 |
| Electrical engineering | 15 | Mining (coal) | 2 |
| Aviation | 7 | Photographic | 1 |
| Advertising | 7 | Heavy engineering | 1 |
| Light engineering | 5 | Printing | 1 |
| Pharmaceutical | 4 | Radio | 1 |
| Technical Journalism | 4 | Paint manufacture | 1 |
| Research (unspecified) | 2 | Atomic energy | 1 |
| | | Marine | 1 |

The information on which this table is based was obtained by considering the entire text of the advertisement (including the name of the firm). It is debatable whether 'electronic engineering' can justifiably be separated from 'electrical engineering', but the items included in the former are those which specifically mention the word 'electronic'. It is clear beyond all doubt that by far the greatest demand for technical writers is in electronic engineering and if this is grouped with electrical engineering the predominance is overwhelming.

It is of some interest to record that the text of the advertisements shows that in nearly all cases the electronic and electrical demand for technical writers refers to compilers of technical manuals. The 14% demand classified by the writer as 'technical author', i.e. where definite creative ability is required, nearly always arises outside the requirements of electronic and electrical engineering.

## SALARY OFFERED

Information on this point is seldom given, specific ranges only being mentioned in seven advertisements. It is therefore very difficult to draw any conclusions, but the information obtained is of some interest.

A figure in the range of £700-800 per annum was mentioned four times and in each case the requirement was for a man not over 30 years old. In one of these cases a figure of £1365 was mentioned as the top limit after training.

The salary range quoted by the National Coal Board, Cheltenham for a 'technical editor' was £575-1050 for a man and £559-893 for a woman. Only in two cases was there any mention of a woman being acceptable and in one case a woman was particularly asked for.

Editorial qualifications appear to command higher salary than those of handbook writers and an assistant 'technical editor' required by the National Coal Board in London was advertised in the range £1000-1280. By comparison, the editorship of a provincial newspaper was offered for £1000 (including expense allowances).

Although not covered by this survey, it is known that at a slightly earlier date a technical writing post in London was advertised in the TELEGRAPH and other newspapers at a salary of £1250. The standards specified were high, but it is understood that about 60 applications were received, of which 15 were selected for interview. During the period covered by this review a London post for a 'technical copywriter' was advertised in the TIMES and carried a salary of £1200 per annum.

## STYLE OF ADVERTISEMENT

A study of the text of advertisements revealed one or two interesting points. For instance, out of the 80 recorded, 34 appeared under the initial 'T', 18 under 'A', 5 under 'C', 4 under 'E' and the remainder spread over the letters 'B', 'H', 'I', 'L', 'O', 'P', 'R', 'S', 'V' and 'Y'. Applicants searching for a post as Technical Writer, although partly sure of seeing what is offered by looking for announcements beginning 'Technical Writer', cannot rely on seeing all of them under the letter 'T'. Many would be surprised to find that more than 22% of the 80 announcements recorded in this survey appeared at the head of the 'Situations Vacant' column under the letter 'A'. The main reason for this was that many announcements started with the word 'Assistant' and some with the word 'Advertising'; other announcements were placed in this unlooked for category

simply because they began with the phrase 'a technical writer'. In other cases the advertisements are displaced in an unexpected alphabetical order by prefacing them with the name of the firm.

Advertisers would probably secure a better response to their advertisements for technical writers, journalists or authors by making sure that they began with the word 'technical'. They should also consider the wording carefully so as to convey a sense of the worth of the post. Announcements beginning with such a phrase as 'Are you interested in writing', 'A well paid career can open up', or merely 'Young man required' cannot be said to inspire confidence and in any case would probably be overlooked by an applicant scanning several hundred advertisements in very small print for one beginning with the words 'Technical Writer'. Even the excellent impression conveyed by one advertisement beginning with the words 'Chief Technical Writer' may have suffered from appearing under an unexpected initial letter.

Studies of successive advertisements issued by the same organization sometimes showed interesting alterations in the phrasing. For instance, two fairly long advertisements issued under a Box Number at an interval of about two months were identical in every word except that the salary offered had been increased from £700 to £750. This might have indicated an unsatisfactory response to the first insertion or a general 'hardening' of the market for technical writers.

## GENERAL CONCLUSIONS

There appears to be a well-sustained demand for Technical Writers in Great Britain, particularly in electronic, electrical and aviation engineering and also in the advertising field. The major demand is in the first three of these fields and it is clear that for these requirements, a specific technical background is required in addition to presentation ability. This also applies in many other fields, except in technical advertising, and some kinds of technical editing and journalism, where technical knowledge appears subordinate to skill in phrasing.

The recruitment of able technical writers is not an easy matter. It could probably be done more effectively if general agreement could be reached as to the functions and title of such a specialist, perhaps under more than one heading if the functions fall into different categories, as indeed they seem to do.

It may well be that this will evolve as a natural development, but if it could be directed into logical channels by a representative body, this end would be achieved much earlier and we might also avoid the perpetuation of pitfalls caused by an illogical use of the English language. This, however, raises a very wide issue, to which it is hoped this review may make a small contribution, by recording what appears to be the present state of affairs.


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# Report of the President

I am happy to report to you that very substantial progress has been made toward the completion of our merger with TWE. The Joint STW-TWE Constitutional Committee completed the final draft of the proposed Constitution and By-Laws at a recent meeting. This draft is being prepared for approval by the officers of both organizations. Since we are in agreement on all basic principles I am certain that the draft will be approved in the near future. Then, it will be submitted to the memberships of both organizations for ratification.

Some of the highlights of the proposed Constitution and By-Laws are: (1) the recommended name is Society of Technical Writers and Editors (STWE); (2) provision is made for the establishment of Sections of the Society in specific areas of interest such as technical writing and editing, illustrating, education, etc; (3) dues for most grades are similar to those for comparable STW grades; and (4) the grade of Sustaining Member is added to permit more substantial industrial support of the Society. All of these provisions received extensive backing from large membership groups. In several membership polls a large majority indicated a preference for the name, Society of Technical Writers and Editors.

The Committee deserves the commendations of all members of our profession for a job well done. By their enthusiasm, hard work, and cooperation they have assured the successful completion of the merger.

It is gratifying to report that STW is continuing to receive broad support and loyalty. A brief review of our latest membership lists indicates that a large number of our original members still believe in the principles of our organization. This support has sustained our growth in the past, and ensures our continued progress in the future.

Furthermore, applications from prospective new members are being received daily. Our increasing membership will enable us to expand our present programs and to initiate new programs.

In addition to new membership applications, we are receiving a substantial number of applications for transfer of grade. A number of our Members are applying for transfer to Senior Member.

The other major STW activities at the present time are the publication of the *Technical Writing Review*, expansion of chapter communication activities, and preparation for the 1957 Convention. The *Review* is continuing its steady progress toward becoming an outstanding professional journal. The last issue, March 1957, contained articles of special interest to all members of our profession. The Publications Committee merits the commendations of the entire membership for its high quality.

At the Board of Directors meeting in New York last November it was agreed that one of the basic needs of STW was the improvement of chapter communications and the expansion of chapter activities. To accomplish this, a Chapter Communications Committee has been appointed with Wes Ballard, our Second Vice President, as Chairman. Wes has made an excellent start in this program by encouraging each Chapter to distribute its Newsletter or Bulletin to all other Chapters. Three Chapters have started the ball rolling; we are certain that the other Chapters will join in this program soon.

The increased STW activity and growing enthusiasm resulting from this program are very encouraging. I am certain that we will be able to expand it to other joint activities soon. Wes will be happy to receive any assistance you can give him.

Plans for our Joint 1957 Convention at the Hotel Statler, New York City, in November are showing excellent progress. The Program Committee has started to establish the themes of the various sessions and to select outstanding speakers. The Convention Commercial Exhibits Committee has prepared its plans and is distributing pertinent literature to all concerned. Each Chapter has been requested to appoint a member to serve on this committee.

All recent signs point to a growing recognition of the profession of technical writing. The increasing interest of industry, government agencies, and leading educational institutions in our work is very encouraging. New courses in technical writing, receiving the enthusiastic support of management, are being started. Each one of us should be proud of his contributions to these achievements.

Robert K. Shnitzler
President, STW
May 22, 1957

# Chapter News

## Albuquerque

The April meeting of the Albuquerque Chapter opened with reports of the membership, nominating and education committees. A motion was then made and approved to award five Special Memberships to students of the Informative Writing classes conducted at the University of New Mexico. These memberships are in addition to the special prize money already donated.

M. L. Levinthal, Writing Group Leader, Lytle Engineering, spoke on "There is More to This Thing Than Writing." He pointed out that a technical writer spends only about 10% of the total job time on actual writing. The other 90% is spent in research, layouts, conferences with engineers, manufactures, draftsmen and artists. There are three main categories of illustrations. (1) Those requiring the same reproduction process as the text. (2) Those requiring a special screening process. (3) Color, that is more than one run on a printing press. The first, are commonly called line drawings; the second are referred to as halftones. However, line drawings may be rendered with an airbrush so that a screening process will be necessary for printing reproduction. Photographs, on the other hand may be outlined and washed so that they become line drawings.

He said that there is a tendency to replace blue prints with isometric drawings. They are mainly used in illustrated parts breakdowns and exploded view, are easy to understand and cheaper to produce than perspective drawings. Photos are used in operating handbooks. They should be taken in such a way that retouching may be kept to a minimum. The talk was conducted with a demonstration of photographic techniques employed in achieving accurate technical detail, avoiding shadows and highlighting of components.

## New York

At the February 15, 1957 meeting of the New York Chapter, a panel of three members discussed the duties of the technical publications supervisor. The three panel members were:

A. Salka, Lead Writer, McGraw-Hill
For the technical writer


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Leo Chase, Lead Writer, Bell Telephone —
For the supervisor
R. P. Rossi, Consultant, Instructor Fordham U. —
For management

Harold Schleich introduced the panel members, and defined the Technical Publications Supervisor as the first-line supervisor in a technical publications organization. Mr. Chase crystallized the duties of the supervisor in orthorhombic shape, with the book at the top, the supervisor at the bottom, and requirements, schedule, budget and liaison at the four remaining corners of the crystal. Mr. Salka followed and, by some clever semantic legerdemain, traced the derivation of the word "supervisor" from its original form of "garbageman-in-disguise". Mr. Salka then introduced a long list of virtues which the technical writer expected from the supervisor. Mr. Rossi presented the views of management, which he summarized by stating that management expects from the supervisor more work for less pay.

During the Q & A period which followed, it was agreed that:

1) The TP Supervisor should not be expected to write text while supervising.
2) The efficiency of first-line supervision decreases markedly as the number of supervised writers increases over six.

The SRO meeting of March 22 resulted from special efforts made by Harold Schleich. The business end of the meeting saw George Goodstadt report on progress made toward organizing the November 1957 National Convention. A report on merger progress was also made. Feature attraction was a panel discussion on "How to alleviate the shortage of technical writers". Panel members were owners or partners in technical publication companies, as follows:

Edward Gallerstein — Coastal Publications
Frank Miele — Illustrated Technical Products
William Shaw — Volt Technical
Moderator — R. Rossi

First man in the frying pan was Mr. Gallerstein who stated that the immediate shortage of writers can be lessened by training technicians to become writers, and by paying better salaries or giving more generous benefits. Coastal is happy with a large percentage of technicians it has trained and prefers this method of recruiting as opposed to attempts to lure graduate engineers.

Mr. Miele expressed general agreement with E. G., but stated that many customers are impressed by the smell of B.Sc., M.S. and Ph.D. sheepskins wafted under their noses. He also stated that increased salaries are not always practical due to limited budgets, and higher pay results in transfer of personnel (= pirating), not alleviation of shortage.

Mr. Shaw followed with a suggestion that training of tech writers be undertaken in the colleges, and that recruiting campaigns be undertaken in the universities.

A round robin discussion followed, during which it was suggested that better use be made of the available writers. This could be done by specialization, by changing specifications, by getting customers to be clear and specific in their requirements, etc. Mr. Rossi asked the pertinent question as to how serious was this shortage of tech writers. The answers indicated that there is a *small* shortage of electronic writers, but no shortage of mechanical writers. Don Ian asked whether the industry would finance scholarships if regular courses were available. The panel's answer was that the industry would do so.

# Position Available

PUBLICATIONS MANAGER — New position requires bachelor degree in journalism or english with mathematics through integral calculus. No experience necessary. Write and send transcript to Colin Campbell, Business Manager, Society of Exploration Geophysicists, Box 1536, Tulsa 1, Oklahoma.

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Harold Schleich summarized the discussion, and stated that the alleviation of the TW shortage was in the interest of the owners of the industry, and not necessarily in the interest of the individual writers. Nevertheless, STW will cooperate with the owners in reducing the shortage, but the initiative and the funds must come from the industry.

## Fort Wayne

Twenty members and three guests attended the 29 April meeting of the Fort Wayne Chapter of Technical Writers held at Indiana Technical College. The minutes of the 25 March meeting were read and approved.

J. J. Harlow reported on the activities of the Public Relations Committee. E. E. Brockman, Program Chairman, announced that the next meeting, to be held 20 May, would be a dinner meeting with the location to be announced later. A report on the activities of the Board of Directors was given by Mr. Gallogly. A report on the activities of the Chapter Convention Exhibits Committee was given. Mr. Gallogly of International Harvester and Mr. Brockman of Farnsworth agreed to serve on this Committee.

It was announced that Mr. Slater had agreed to serve as Historian for the Chapter.

The amendments made to the Chapter By-Laws as suggested by the Board of Directors and presented at the March meeting were voted on and adopted. The amendments as written are now part of the By-Laws.

The Nominating Committee announced the following slate of officers:

*President* .....J. J. Harlow
*Vice-President* .....E. E. Brockman
*Secretary* .....Wm. Brookfield
*Treasurer* .....J. E. Morrison
*Member-at-large of Board of Directors* .....J. Wittgenfeld

No further nominations were made from the floor.

Mr. Brenneman agreed to act as Chairman of a newly created Standards Committee and asked for volunteers to assist him.

Mr. Brockman, Program Chairman, introduced Mr. George Swank who talked to the group on "Training the Technical Writer".

The meeting was adjourned at 9:45 p.m.

## Cincinnati

The recently organized Cincinnati Chapter held its charter night program on Friday March 29. A crowd of about fifty persons, including members, wives and friends was on hand. Mr. Clarence Reesey, Vice President of Cincinnati Milling Machine Company, gave the main address.

The growing membership of this chapter now includes twenty members. Officers are: Ken Yarber, President; Bob Wadland, Vice President; Don Corlett, Secretary; and Doris Faulkner, Treasurer.


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The program was held in the spacious new Cincinnati Public Library, where a group of library-owned books on Technical and Report Writing were on display. Mrs. Dorothy McNutt of the library staff is to be commended for her fine co-operation in helping to prepare this display.

Plans are afoot to encourage the members in writing articles for publication explaining some of the problems of the technical writer and outlining the benefits a technical writer can bring to his employer.

## Chicago

The Chicago Chapters of STW and TWE have been meeting jointly. In order to accommodate the ambitious members who are enrolled in night schools, bowling leagues, etc. the meeting night and place vary. The spring meetings were held on Thursday, March 21, 1957 in the Western Society of Engineers Building at 84 E. Randolph, Chicago, Ill. and Wednesday, May 8, 1957 in the International Harvester Auditorium at 190 E. Delaware, Chicago, Illinois.

The programs have been planned for members whose interests lie in originating or producing technical communications.

Some of our recent speakers were member R. D. McCormick speaking on "Electronic Facsimile Techniques", Alvin Blake speaking on the "Place of STW — TWE in the Chicago Technical Societies Council" and Dr. Garnet Page speaking on "Straight Thinking and Straight Writing."

The current officers and chairmen of STW and the "merged" group as well are —

*President* .....Russ Kasmar
*Vice President* .....Elizabeth Kolpak
*Secretary* .....Ernestine Kohn
*Treasurer* .....Charles Williams
*Section Reporter* .....Fran Powers
*Education* .....Dr. Milton Goldstein
*By Laws* .....Ethaline Cortelyou

## Boston

Harry Miller, editor at the Raytheon Manufacturing Company Laboratory, Maynard, Mass., and former New England District Supervisor for Technical Data, U. S. Air Force, was guest speaker at the April meeting of the Boston Chapter, held at the Museum of Science. Mr. Miller described improvements in Air Force requirements and the methods for processing handbooks to ensure readiness of the publications at the time of equipment deliveries. He explained how greatly the Air Force depends on contractors to fulfill the technical needs of the publications phase of each contract.

The Bibliography Committee presented — as its final report — a 22-page annotated bibliography of technical writing. It contained detailed reviews — with frank criticisms — of 55 publications dealing with technical writing. Printed copies were distributed to members present at the meeting.

The final Boston Chapter meeting of the 1956-1957 season was held on Tuesday, May 7 as a dinner meeting in a private dining room at the Red Coach Grill in Boston. Members brought their wives (husbands) and friends as their guests. A social hour preceded the banquet. The results of the mail ballot for Boston Chapter officers for the 1957-1958 season were announced by the Tellers Committee. The new officers are: President, Kenneth A. Young; Vice President, Sydney F. Shapiro; Secretary-Treasurer, Betty Karasik. Newly elected Executive Board members are: Vincent J. Dowdell, Jr., John W. Fallon, and Hector E. French. John V. E. Hansen, as most recent Past President, will automatically serve as the seventh member of the Executive Board.

Guest speaker at this dinner meeting was Prof. William N. Locke, Head of the Department of Modern Languages and Director of Libraries at Massachusetts Institute of Technology. Prof. Locke discussed "Translating Machines." He told of some of the techniques being used in current attempts to develop a translating machine. One of the points that he stressed was that a much more thorough study must be made of the mechanics of language before a practical translating machine can be built.

## Mohawk

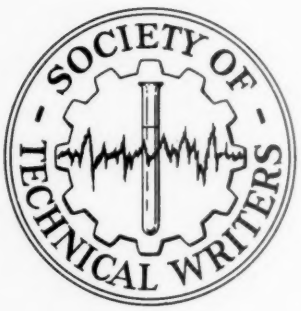
An educational, illustrated talk on the art mechanics and pitfalls of making industrial films was presented at the March meeting. F. C. Regan of Behr-Manning Corp., was the speaker.

Some of Mr. Regan's helpful suggestions are listed below:

Pick one target.
Keep commercial to minimum.
Decide object of film, audience and message, before starting script.
When you start to shoot film, have complete itinerary, stay with camera crew, keep complete notes and use professional models.
In cutting room, cut out poor photography, arrange for proper impact and check continuity.
Final script should contain simplest wording and have all necessary approvals.
Narration should be done by a professional.

"How to Use an Outside Technical Writing Service" was the subject of a talk given at the May meeting. R. L. Craig, Manager of Sales and Estimating, MacGraw Hill Technical Writing Service, was the speaker. He cited the advantages of industry using an outside agency for writing and editing. He emphasized commercial type technical writing by presenting a case history of an actual commercial project.

Communication within the Mohawk Chapter has been improved considerably by the frequent issue of a Newsletter.

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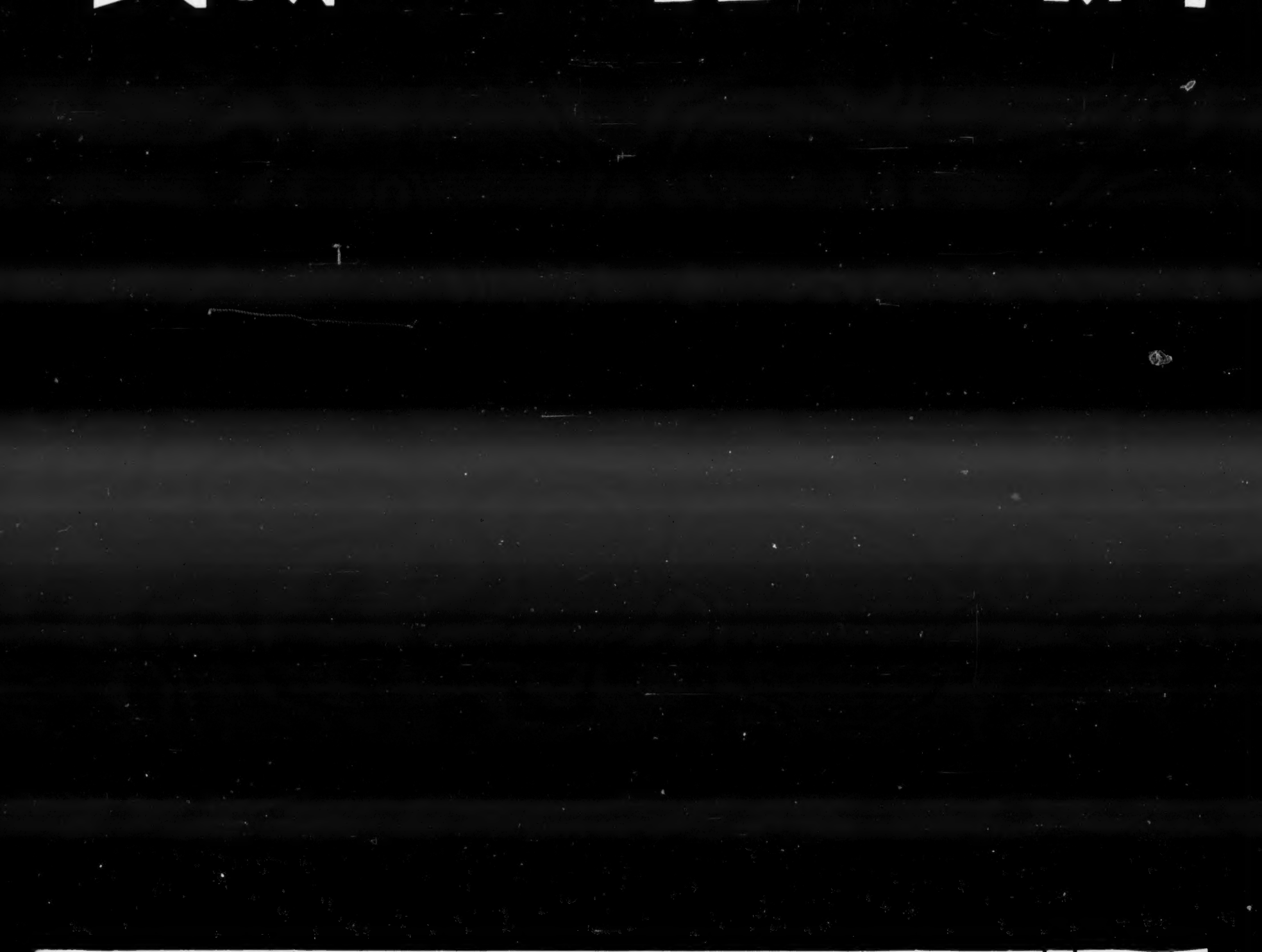
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